

IN THE CLAIMS:

Please amend the claims by canceling Claims 1-40, without prejudice, and replacing them with the following Claims 41-61:

--41. An article comprising an optical fiber with a refractive index grating having a length and a reflection wavelength λ at a given temperature within an operating temperature range; wherein the optical fiber is attached to a support member, said support member having a negative coefficient of thermal expansion selected such that λ is substantially temperature independent over said operating temperature range.--

--42. An article according to claim 41, wherein the support member has a negative coefficient of thermal expansion selected such that $|d\lambda/dT|$ is approximately 10% of $d\lambda/dT$ of an otherwise identical comparison grating that is not attached to a support member.--

--43. An article according to claim 41, wherein the operating temperature range includes 20°C.--

--44. An article according to claim 43, wherein the operating range includes at least a portion of the range -20° to 65°C.--

--45. An article according to claim 41, wherein the optical fiber is a silica-based optical fiber.--

--46. An article according to claim 41, wherein the optical fiber is attached to the support member at least over the length of the refractive index grating.--

--47. Article according to claim 41, wherein said optical fiber is attached to the support member at bonding platforms.--

--48. Article according to claim 47, wherein said bonding platforms are configured such that said refractive index grating is spaced from said support member.--

--49. Article according to claim 47, wherein said bonding platforms comprise a material selected to have a coefficient of thermal expansion that is substantially matched to the coefficient of thermal expansion of the optical fiber.--

--50. Article according to claim 41, wherein said support member comprises a first negative thermal expansion coefficient member bonded to a second positive thermal expansion coefficient member, said first and second members selected to provide a support member having a desired value of the negative thermal expansion coefficient.--

--51. An athermal optical device comprising:

a negative expansion substrate having an upper surface; and

a thermally sensitive, positive expansion optical component affixed to the substrate upper surface at at least two spaced apart locations.--

--52. The device according to claim 51, in which the optical component is an optical fiber grating...

--53. The device according to claim 51, in which the optical component is a waveguide...

--54. An athermal optical fiber grating device comprising;
a negative expansion substrate having an upper surface and first and second ends;
an optical fiber affixed to the substrate upper surface at at least two spaced apart locations; and
a grating defined in the optical fiber between and at a distance from each substrate end.--

O --55. The device according to claim 54, in which the optical fiber is affixed to the substrate upper surface at first and second spaced apart locations, the first location is between the grating and the first substrate end and the second location is between the grating and the second substrate end.--

--56. The device according to claim 54, wherein the fiber is affixed by a layer of attachment material.--

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